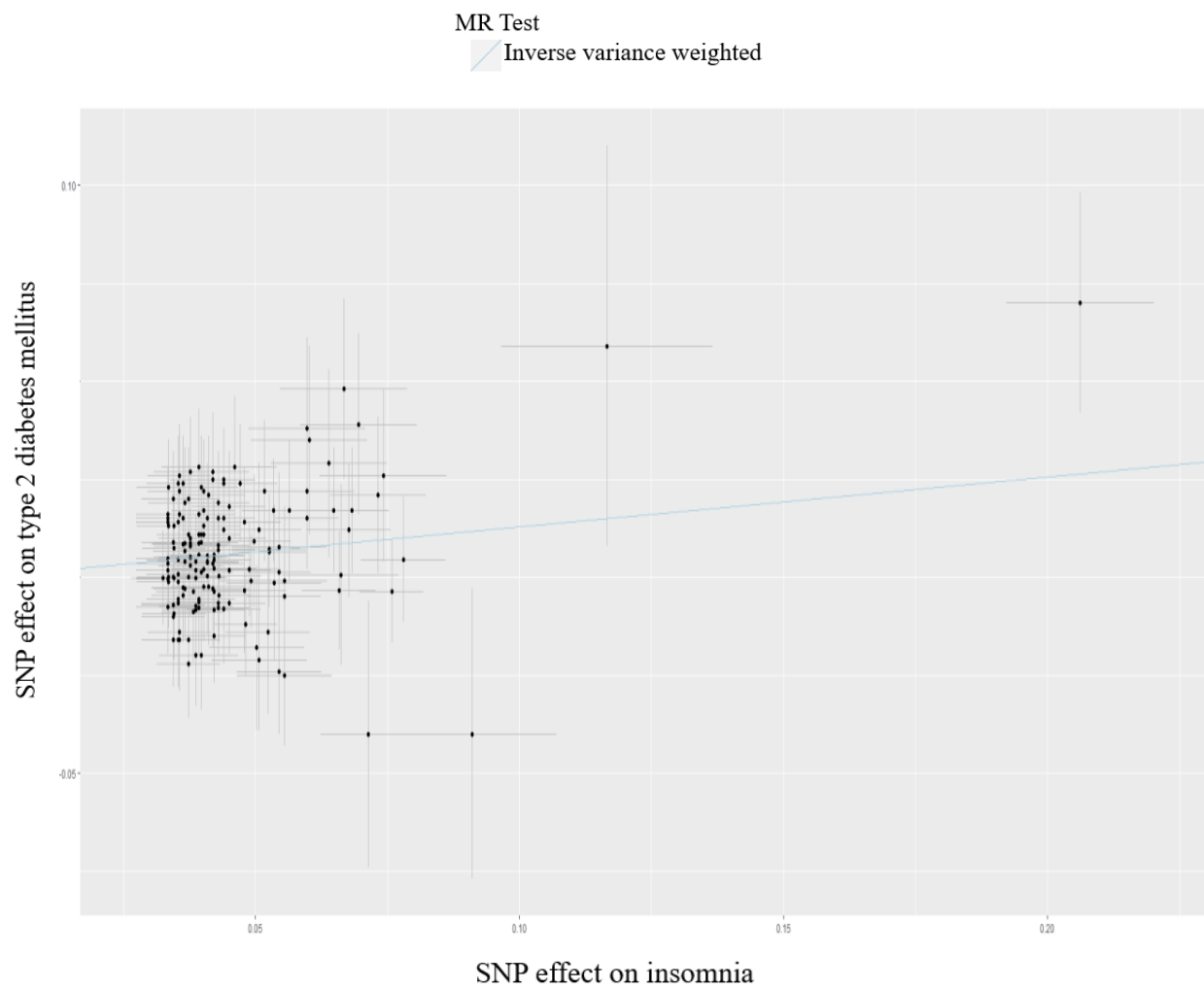
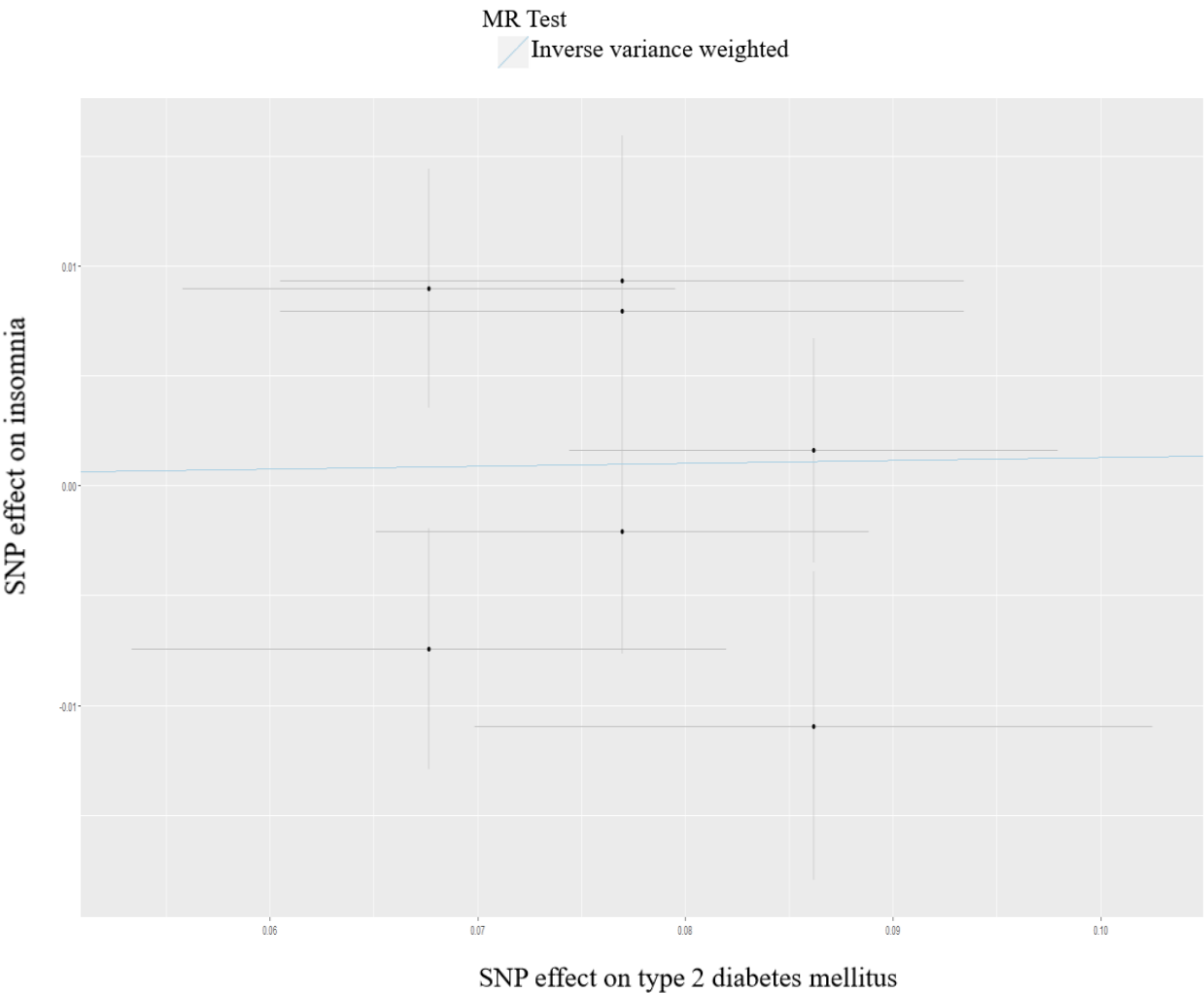


Supplementary Figures 1-8

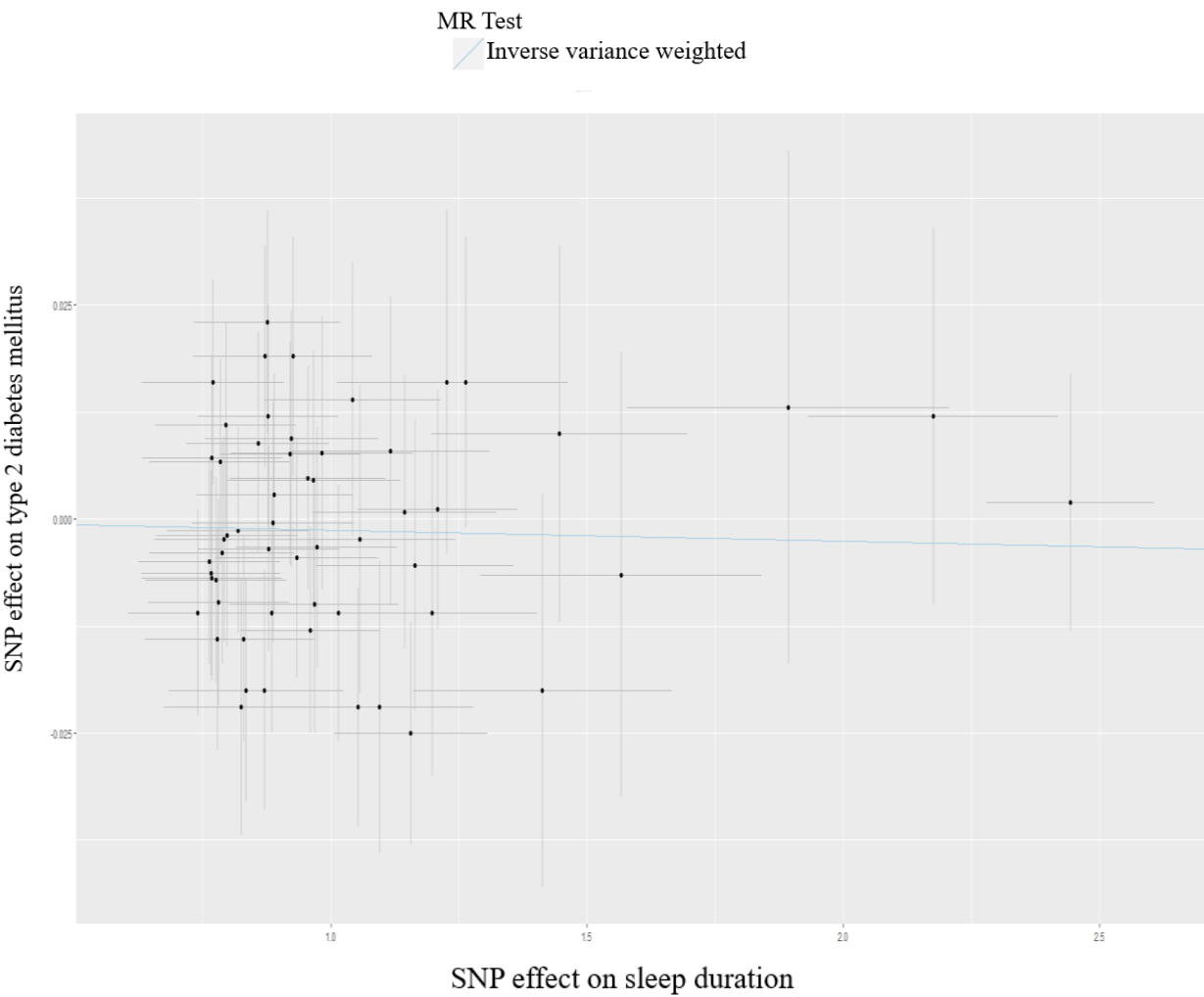
Supplementary Figure 1: Scatter plot of SNP-insomnia and SNP-T2DM association with overlay of causal estimate from IVW test in two-sample MR-analysis



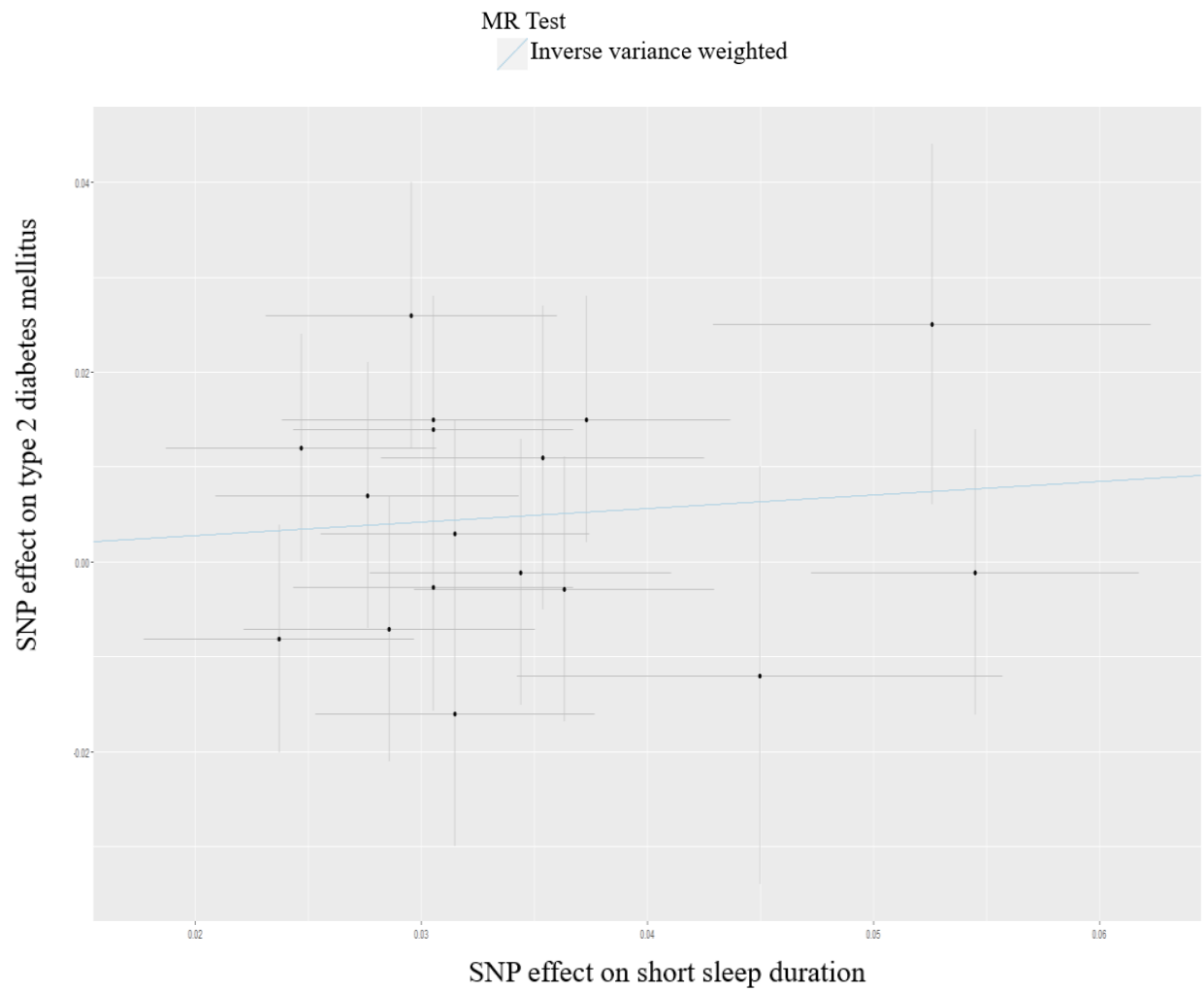
Supplementary Figure 2: Scatter plot of SNP-T2DM and SNP-insomnia association with overlay of causal estimate from IVW test in two-sample MR-analysis



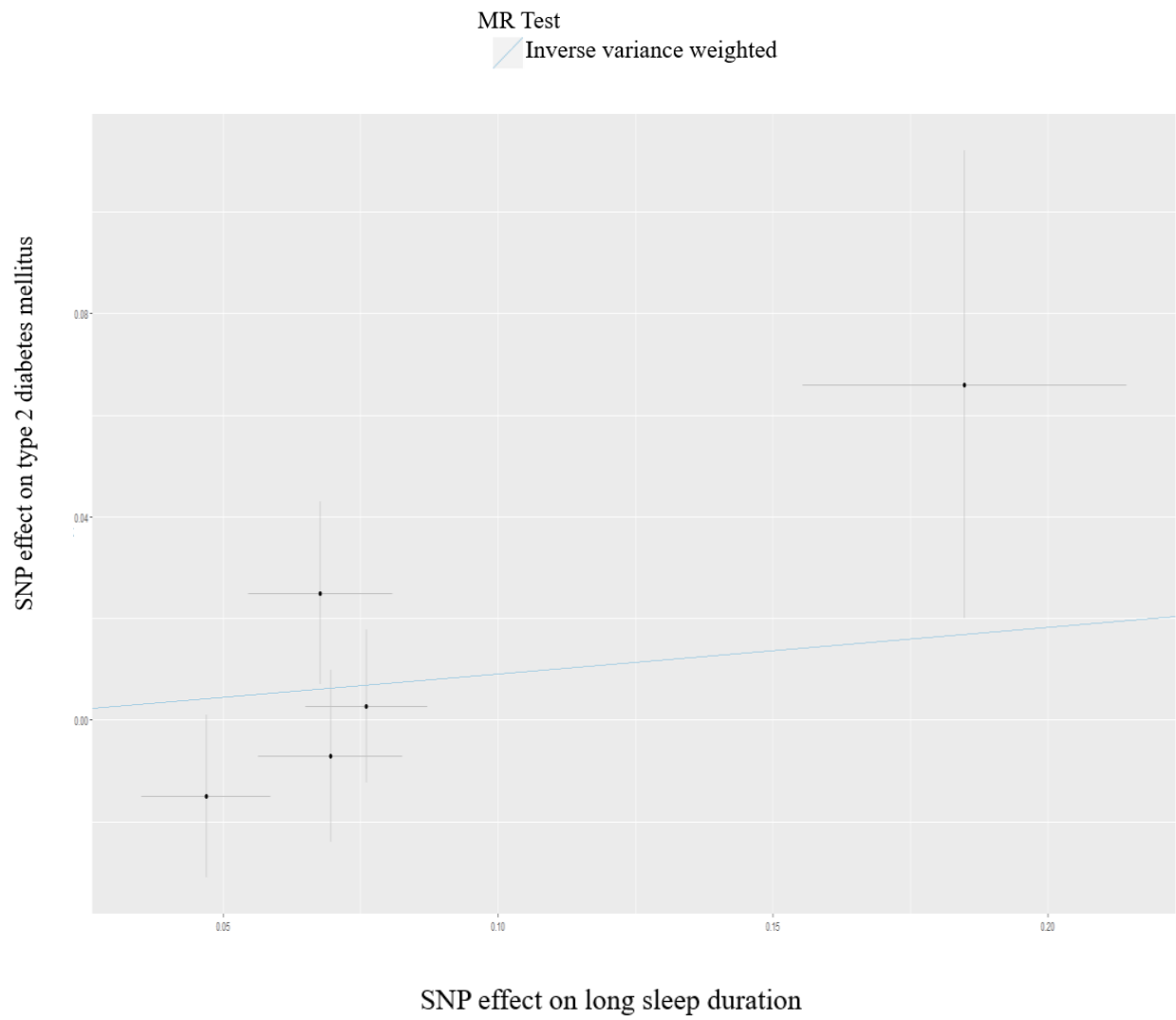
Supplementary Figure 3: Scatter plot of SNP-sleep duration and SNP-T2DM association with overlay of causal estimate from IVW test in two-sample MR-analysis



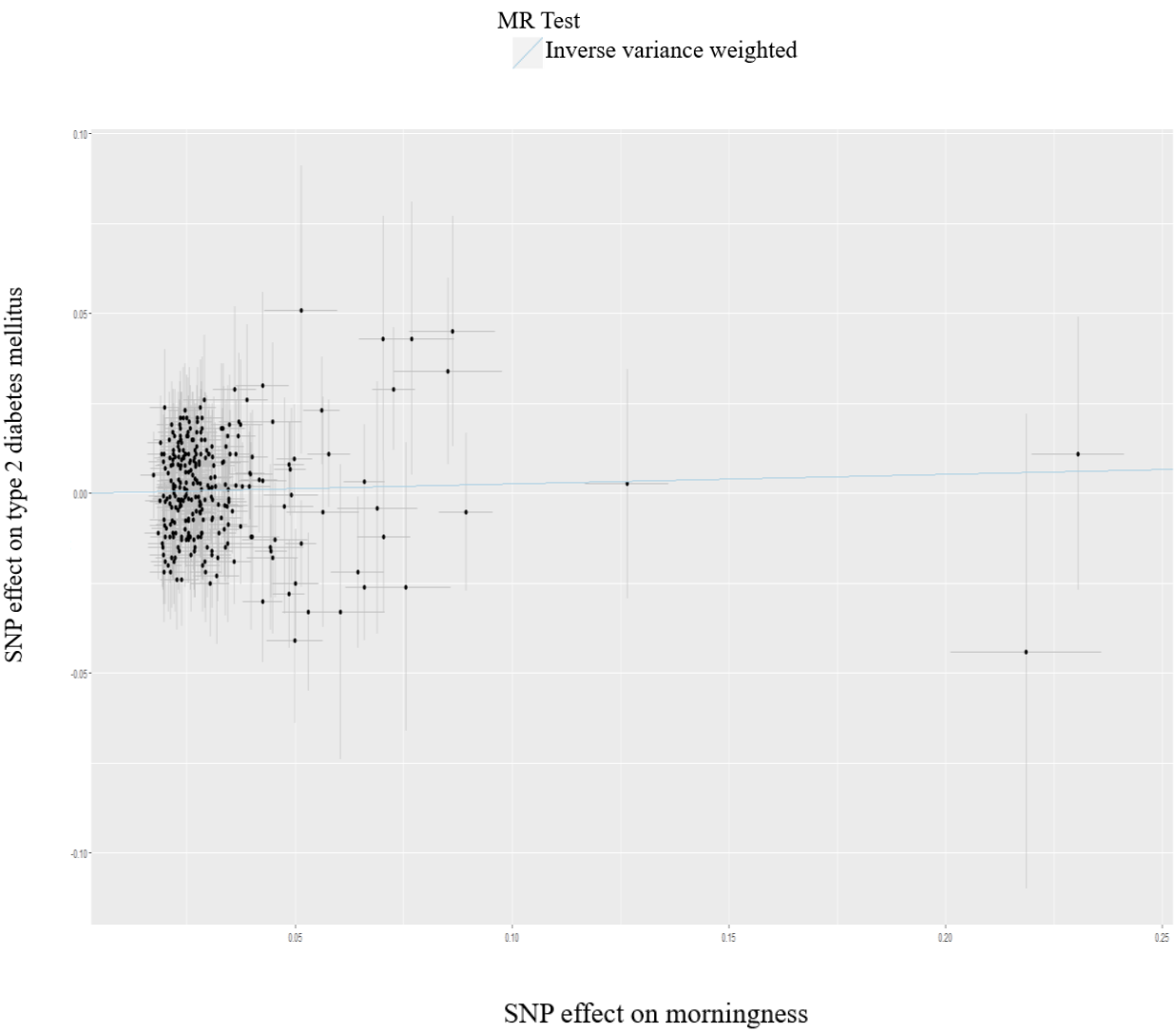
Supplementary Figure 4: Scatter plot of SNP-short sleep duration and SNP-T2DM association with overlay of causal estimate from IVW test in two-sample MR-analysis



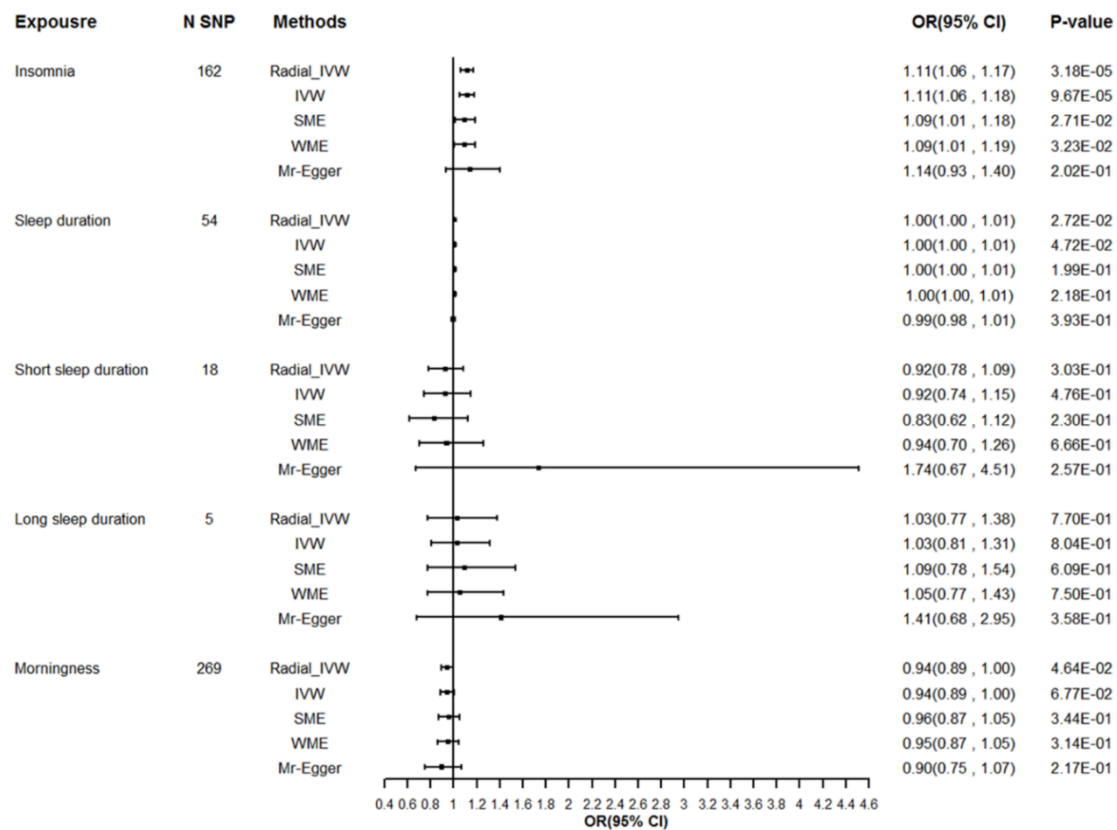
Supplementary Figure 5: Scatter plot of SNP-long sleep duration and SNP-T2DM association with overlay of causal estimate from IVW test in two-sample MR-analysis



Supplementary Figure 6: Scatter plot of SNP-morningness and SNP-T2DM association with overlay of causal estimate from IVW test in two-sample MR-analysis

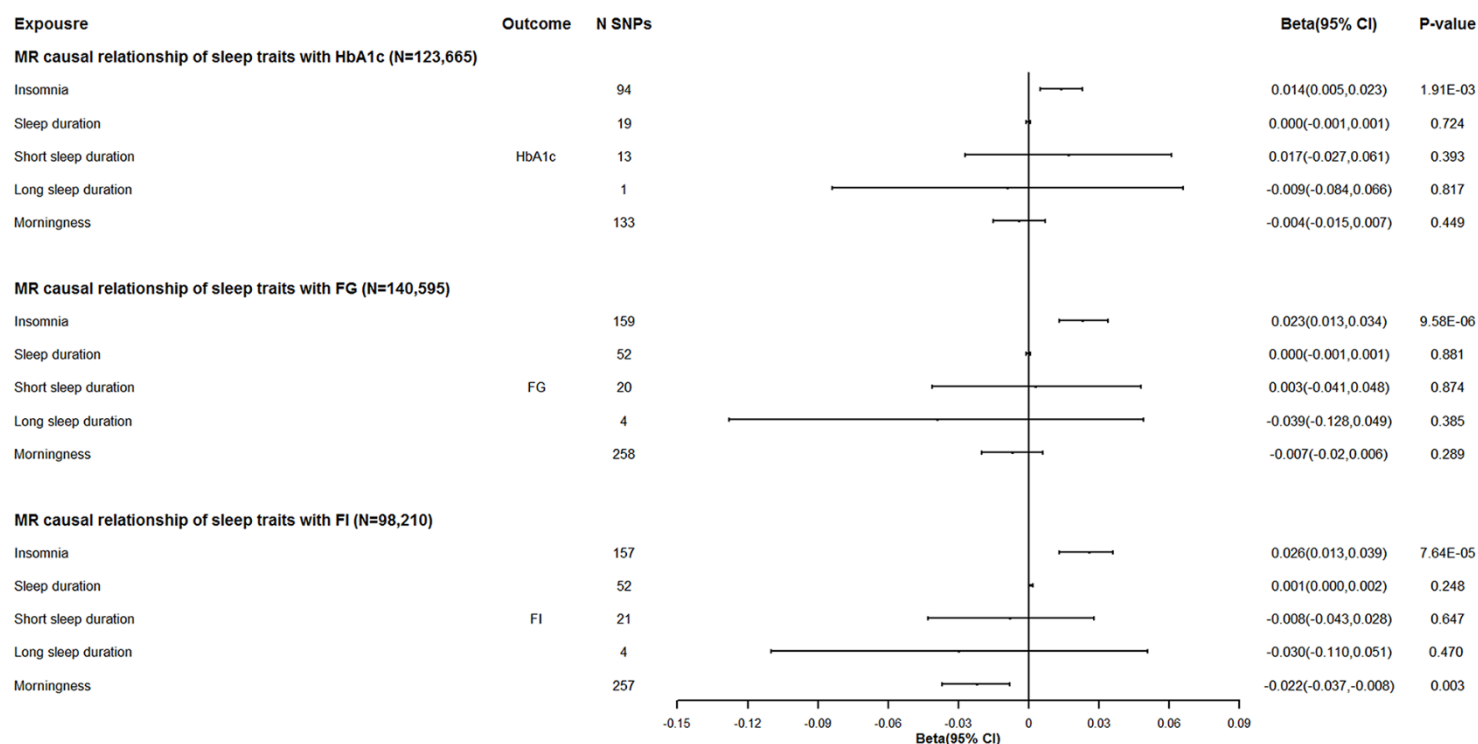


Supplementary Figure 7: MR causal relationship of sleep traits with T2DM (FinnGen cohort)



Abbreviations: MR: Mendelian randomization; T2DM: Type 2 diabetes mellitus; N SNPs: number of SNPs retained and used in the MR analysis after clumping and exclusion of pleiotropic SNPs; OR: odds ratio; CI: confidence interval.

Supplementary Figure 8: MR causal relationship of sleep traits with HbA1c, FG and FI



Abbreviations: MR: Mendelian randomization; HbA1c: Hemoglobin A1c; FG: fasting glucose; FI: fasting insulin; N SNPs: number of SNPs retained and used in the MR analysis after clumping and exclusion of pleiotropic SNPs; OR: odds ratio; CI: confidence interval.

Note: the causality of long sleep duration with T2DM are estimated with classical IVW due to the lack of instruments, other causalities were estimated with modified IVW.